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Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

IMPROVEMENT IN LEFT VENTRICULAR GLOBAL LONGITUDINAL STRAIN IS ASSOCIATED WITH IMPROVED OUTCOMES IN SEVERE AORTIC STENOSIS FOLLOWING AORTIC VALVE REPLACEMENT

Poster Contributions
Poster Hall B1
Sunday, March 15, 2015, 9:45 a.m.-10:30 a.m.

Session Title: Non Invasive Imaging: Strain Imaging by Echocardiography
Abstract Category: 17. Non Invasive Imaging: Echo
Presentation Number: 1174-020

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Background: Left ventricular global longitudinal strain (LV-GLS) is a more sensitive marker for regional myocardial function (and remodeling) than ejection fraction (LVEF). We hypothesized that improvement in post-aortic valve replacement (AVR) LV-GLS predicts outcomes in patients with aortic stenosis (AS) and preserved LVEF.

Methods: 103 patients (67±13 years, 64% men, mean AV gradient 42±17 mm Hg) with severe AS had transthoracic echocardiograms before and 6-12 months after AVR. Clinical and echo data were recorded. LV-GLS was performed by two independent analysts (Velocity Vector Imaging, Siemens); a cutoff of worse than -14.5% was considered abnormal. Outcomes were a composite of deaths and hospitalization for heart failure.

Results: Pre- and post-AVR LVEF were similar (59±5% vs. 57±6, p=N.S); however, LV-GLS improved significantly (-14.3±3.5% to -16.3±3.4%, p<0.05; Figure a). After AVR, only 25% of patients had an abnormal LV-GLS vs. 49% pre-AVR. At a follow-up of 3.3±2 years, 19 (18%) patients had events (6 deaths). Patients with post-AVR LV-GLS worse than-14.5% had significantly more events than patients who had normal GLS (Figure b).

Conclusion: In patients with severe AS and preserved LVEF, ~50% have abnormal LV-GLS pre-AVR, which does not uniformly improve post-AVR. Persistence of abnormal post-AVR LV-GLS was associated with higher incidence of adverse events. Further studies are needed to validate these findings.

Figure a

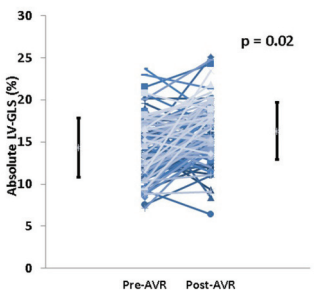

Figure b